



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,063	04/05/2001	Chuan-Yu Hsu	YUSO-113	3442

7590 08/13/2004
Raymond Sun
12420 Woodhall Way
Tustin, CA 92782

EXAMINER

LEE, CHEUKFAN

ART UNIT	PAPER NUMBER
----------	--------------

2622

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/827,063

Applicant(s)

HSU ET AL.

Examiner

Cheukfan Lee

Art Unit

2622

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2001.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-22 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 05 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-22 are pending. Claims 1 and 17 are independent.

2. The drawings are objected to because of the following:

Fig. 2 should be labeled with – PRIOR ART --. See page 1, line 17 of the specification.

3. The disclosure is objected to because of the following informalities:

Page 1, line 21, the term “charge coupling device” should read – charge-coupled device --, a standard term in the art; Applicant should check for such minor error throughout the specification.

Appropriate correction is required.

4. The claims are objected to as follows:

In claim 1, lines 1-2 of the claim, “plates includes” should read – plates, including: --;

Line 5, “which is” should read – which are – since “plural reflection elements” is plural, not singular;

Line 9, “which may focus” should be – which focuses – to be definite;

Line 9, “the light” lacks antecedent basis; “the light” should read – light --;

Line 11, “may be imaged” should be – is imaged – to be definite;

Lines 13-21, the format of this portion of the claim is improper; one suggestion for line 13 is to replace “the characteristics are” with – characterized in that -

Art Unit: 2622

-; periods "." should not be used unless it is at the end of the claim, and words should not be capitalized as if the word is the beginning of a sentence or a complete sentence;

Line 17, "[e]ach reflection elements" is not grammatical because "each" is in singular form and "elements" is in plural form; and

Lines 17-18, "are ... materials" should read – are of ... materials --.

In claim 2, lines 2-3 of the claim, the language should re-phrase to "according to claim 1 further includes a light source provided on an appropriate position of an upper side of said shell body.

In claim 3, "charge-coupling device" should read – charge-coupled device --.

In claim 4, line 2, "said reflection planes" lacks antecedent basis; it seem that the term should read – said connection planes --; and

line 3, "two inside walls" should read – the two inside walls – or – said two inside walls – if the walls are referring the "two inside walls" already set forth in the claim or a claim upon which the claim depends directly or indirectly.

In claim 6, line 5, "can be" should be – is – to be definite.

In claim 8, line 2, "may" should be changed to – is – to be definite.

In claim 9, line 3, use of "can" is not proper.

In claim 13, the "wherein ..." clause does not flow well;

Lines 3-4, the term "the modularization method" lacks antecedent basis;
and

Line 3, "can be" should be replaced with is to be definite.

In claim 14, the "wherein ..." clause does not flow well; the words "Plural" and "When" should not be capitalized; period "." should not be used unless it's at the end of the claim; and

Line 5 of the claim, "the assembly" lacks antecedent basis.

In claim 15, line 3, -- , -- should be used between "bending" and "breaking".

In claim 17, lines 1-2 of the claim, "plates includes" should read -- plates, including --; and

Lines 6-16, the same problem occurs as the problem of claim 1, lines 13-21.

In claim 18, "said reflection planes" lacks antecedent basis.

In claim 20, line 2, "may be" should be changed to -- is -- to be definite.

In claim 21, line 3, "can make ... be" should be replaced with -- makes --.

In claim 22, the "wherein ..." clause does not flow well.

Claims 5, 7, 10, 11, 12, 16, 18, and 19 are objected to as being dependent upon an objected claims.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5, 7-10, 13, and 16, insofar as the claims are understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art and Vent (U.S. Patent No. 6,489,457).

Regarding claim 1, Applicant's admitted prior art optical chassis comprises all limitations claimed (Figs. 1 and 2, page 1 of the specification), except for the reflection elements of non-glass materials, and the direct connection and positioning of the reflection elements on the connection planes by a method of pasting.

Applicant's prior chassis includes a shell body (141) having a hollow accommodating space and a pair of opposite inside walls, a plurality of reflection elements (mirrors 143) arranged inside the space at predetermined angles for making appropriate reflections of light entered into the shell (141), a lens set (144), and an imaging apparatus (145), which read on the claimed shell body, plural reflection elements, lens set, and imaging apparatus, respectively.

Applicant's prior art chassis further includes several inter-corresponding connection planes (to which elements 146 are disposed) formed on the two inside walls of the space at predetermined angles and positions, providing a connecting positions for the plurality of reflection elements (mirrors 143).

With regard to the claimed reflection elements of non-glass materials, direction connection and positioning of the reflection elements on the connection planes of the chassis by a pasting method, Vent discloses a non-glass reflective element (9) of a thin

Art Unit: 2622

plate structure pasted on a frame surface (17) at a predetermine angle an position appropriate for reflecting light at a desired angle (Fig. 2). The non-glass reflective element (9, 20), which is a thin plate, has a reflective layer constructed of a chrome film (27) over which a clear substrate (29) is formed, and an adhesive layer (25). The reflective element (thin plate) (9, 20) also comprise two (outer) liner (23 and 31) for protecting the outside layers of the element (9, 20). These liners are removed during the pasting process of the reflective element/thin plate onto the connection plane (inner surface of 17) of the frame (17) to expose an adhesive layer (25) so that the layer (25) is adhered to the surface of the frame (17). The protective layer (31) is clear and is adhered to clear substrate (29 of 9 or 20) based on electrostatic forces (or with an adhesive that will be completely removed upon removal of the protective liner) (col. 4, lines 40-45). The reflective thin plate (9, 20) is made of flexible materials (27, 29, etc.) and fits onto the connection plane, i.e., the surface of the frame (17) of a bending-shape.

The purpose of Vent's use of the reflective thin plate (9, 20) is to increase intensity of reflected light in a document image scanner with reduced cost and complexity (col. 2, lines 61-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Applicant's prior art and Vent in a way that reflective thin plates (9, 20) of Vent are employed to replace mirrors (143) and associated supporting elements (146) of Applicant's prior art in order to provide an

optical chassis of reduced cost and complexity and yet of high reflection efficiency as taught by Vent.

Regarding claims 2 and 3, see light source (142) and CCD of Applicant's prior art Fig. 2.

Regarding claim 4, according to Applicant's prior art Fig. 2, the connection planes (not reflection planes as addressed in the objection of claim 4 above) of Applicant's prior art (Fig. 2) are inherently directly formed on the two inside walls of the shell body (141) by a plastic injection.

Regarding claim 5, one surface of the thin plate of the reflective element (9, 20) is arranged with plating film of reflective material (29 and 27), while the other surface is coated with glue (25) for direct pasting of the thin plate onto the connection plane.

Regarding claim 7, the obvious chassis of Applicant's prior art and Vent differs from the claimed invention in that glue (25) is provided on one surface of the thin plate of the reflective element instead of on a surface of the connection plane. One of ordinary skill in the art would have realized that it is just a matter of convention to provide glue on the reflective element or to provide glue on the connection plane. It would have been obvious to one of ordinary skill in the art that when either convention is used, the connection plane and the reflective element are held together by the provided

Art Unit: 2622

glue. Therefore, it would have been an obvious design choice to provide glue on the connection plane instead of on the surface of the reflective element so that the relatively small reflective elements without glue are easier to handle.

Regarding claim 8, the thin plate of the reflective element of Vent is a reflective tape (20), which is a reflective tape made by 3M™ having a product name ECP-305 and a reflectance value of 96%. ECP-305 product is known to have metal layer, which reads on the claimed metal sheet.

Regarding claim 9, the reflective tape (20) of Vent is flexible and is shown in Fig. 2 in a bent form.

Regarding claim 10, according to Fig. 2, the form of the thin plate of reflective tape (9, 20) is a narrow long rectangular shaped thin plate.

Regarding claim 13, according to the teaching of Vent, the reflective element (9, 20) arranged with the thin plates is produced with appropriate dimensions so as to be fitted on surface (17) which is part of the device (11) (col. 4, lines 1-10), which reads on a module. Thus, the inherent method applied to manufacture the module is a modularization method.

Regarding claim 16, the chassis is applied to the optical scanner of Applicant's prior art and Vent.

Art Unit: 2622

7. Claims 6, 14, 15, and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art and Vent (U.S. Patent No. 6,489,457) in view of well known art.

Regarding claim 6, in the obvious chassis of Applicant's prior art and Vent discussed for claim 1 above, one surface of the thin plate of the reflective element (9, 20 of Vent) is arranged with plating film of reflective material (29 and 27), while the other surface is coated with glue (25) for direct pasting of the thin plate onto the connection plane.

Vent does not disclose that the glue is of thermo-plastic materials as claimed. However, the examiner took Official Notice of the fact that relatively strong glue of thermo-plastic materials is well known and widely used in the art of assembling machine components. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize glue of thermo-plastic materials as the glue (25 of Vent) of Applicant's prior art and Vent to provide strong connection between the thin plate (9, 20) and the connection plane as is known in the art.

Regarding claims 14 and 15, Vent does not disclose a batch production method for producing and manufacturing the reflective elements with the thin plates. However, the examiner took Official Notice of the fact that such method of batch production is not novel but is well known. The reflective elements of Vent each has a protective liner and a release liner (col. 5, line 57 – col. 6, line 2). One of ordinary skill in the art would have realized that the form of the reflective elements is suitable to be produced by a batch

production method and suitable for separating by bending, breaking and tearing off. It would have been obvious to one of ordinary skill in the art at the time the invention was made to produce many of the reflective elements of Applicant's prior art and Vent by a method of batch production which allows separation by bending, breaking and tearing off in order to speed up the manufacturing process and allow easy use of the reflective elements.

For claim 17, see discussion for claims 14 and 15 addressed above, in addition to the discussion for claim 1. Note that Applicant's prior art Fig. 2 shows a hollow shell body (141) as claimed.

Regarding claim 18, as the claim is understood that "said reflection plane" is really referring to the connection planes of claim 17 upon which claim 18 depends, according to Applicant's prior art Fig. 2, the connection planes for connecting the reflective elements are inherently integrally and directly formed onto inside walls of the shell body (141) by injection molding. Though it is not explicitly shown that the molding is plastic injection molding, the examiner took Official Notice of the fact that plastic injection molding is a well-known process in forming frames including image sensing modules or chassis. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize plastic in the process of injection molding to produce a light-weighted and yet strong chassis.

Regarding claim 19, as discussed above, the thin plate the reflective element (9, 20) of Vent has a plating film (29) on one side thereof and a glue layer (25) provided on another side thereof to directly glue the thin plate onto the connection plane.

Regarding claim 20, the thin plate of the reflective element of Vent is a reflective tape (20), which is a reflective tape made by 3MTM having a product name ECP-305 and a reflectance value of 96%. ECP-305 product is known to have metal layer, which reads on the claimed metal sheet.

Regarding claim 21, the reflective tape (20) of Vent is flexible and is shown in Fig. 2 in a bent form.

Regarding claim 22, according to the teaching of Vent, the reflective element (9, 20) arranged with the thin plates is produced with appropriate dimensions so as to be fitted on surface (17) which is part of the device (11) (col. 4, lines 1-10), which reads on a module. Thus, the inherent method applied to manufacture the module is a modularization method.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art and Vent (U.S. Patent No. 6,489,457) as applied to claim 1 above, and further in view of Huang et al. (U.S. Patent No. 6,575,600).

Regarding claim 11, in the obvious chassis of Applicant's prior art and Vent discussed for claim 1 above, the thin plate of the reflective element (9, 20 of Vent) does not have a trapezoidal shape as claimed. However, employing trapezoid shaped reflective elements (44, 45, 46) in an optical reflection device having a charge-coupled device (48) (Figs. 6-8) in order to save space within the device is taught by Huang et al. (col. 2, line 36 – col. 3, line 27, col. 4, lines 20-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ thin plates of a trapezoidal shape as the thin plates of the reflective elements of Applicant's prior art and Vent in order to save space within the chassis as taught by Huang et al.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art and Vent (U.S. Patent No. 6,489,457) as applied to claim 1 above, and further in view of Nakahara et al. (U.S. Patent No. 6,563,608)

Regarding claim 12, the thin plate(s) of the obvious chassis of Applicant's prior art and Vent discussed for claim 1 above do not have a shape claimed, i.e., a shape having an unequal width, narrow and long. However, the claimed shape of reflective element for producing more uniform or even reflected light in an original scanner is not novel and is taught by Nakahara et al. (Figs. 6A and 6B, col. 5, line 64 – col. 6, line 31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ thin plates of such shape of Nakahara et al. as the thin plates of

Art Unit: 2622

Applicant's prior art and Vent in order to produce more uniform or even light as taught by Nakahara et al.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (703) 305-4867. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cheukfan Lee
Aug. 3, 2004


Cheukfan Lee